Sampling and Analysis Plan

for the

Environmental Protection Agency

Emergency Response Program

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for the
Environmental Protection Agency Emergency Response Program

Project Name: Rico Town Pond Site

U.S. EPA Project Number: 0004-0010

Contractor Project Number: 75-F0000410

U.S. EPA Contract Number: 68-W5-0031 EPA Region VIII

Prepared By: Les Sims

Approvals and Distribution:

SAP After the Fact

Tien Nguyen _____ 5/1/2000
EPA On-Scene Coordinator — Date

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START Deputy Team Leader — Date

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START Project Leader — Date

cc: File/UOS
START QAO (Signature page only)

TABLE OF CONTENTS

OVERVIEW

This template provides a format for preparing a Sampling and Analysis Plan (SAP) under emergency response or opportunity sampling conditions. This SAP template, when completed, provides a complete description of a site or facility and includes information about sample collection activities and quality assurance. Changes in site conditions and/or direction from the U.S. Environmental Protection Agency (EPA) On-Scene Coordinator (OSC), that cause a departure from this SAP, must be noted in the field log book and project reports.

Use this template only when there is (1) less than 24 hours before the sampling occurs or (2) when the OSC anticipates that the site and/or emergency action will be non-complex, less than one acre in size, and require collection of less than 15 samples total. Write a standard SAP if this is not an emergency, if all of the above conditions can not or will not be met, or if conditions change during the course of the sampling.

This SAP template is organized according to EPA guidance. The guidance specifies that a QAPP must contain twenty-five elements (sixteen for Region VIII). The SAP template conforms to this guidance and contains information regarding site location/description, site history, project objectives, sampling design, sample collection and analysis, project organization/schedule, and project quality assurance.

A completed SAP template provides the site-specific quality assurance information that is used in conjunction with the EPA Emergency Response Program (ERP) Generic Quality Assurance Project Plan (QAPP) to satisfy the requirements of EPA Order 5360.1 "Policy and Program Requirements to Implement the Mandatory Quality Assurance Program". Order 5360.1 states that all environmental data collection activities, that are performed by or on behalf of the EPA, must be supported by an approved QAPP. The QAPP must be completed and approved prior to the start of data collection activities, except as specified by Region VIII emergency response/time-critical removal policies. The ERP Generic QAPP provides quality assurance information that is common to all sampling activities. The SAP provides quality assurance information that is unique to a site.

This SAP template was prepared by URS Operating Services, Inc. (UOS) for the Region VIII Emergency Response Program (ERP) as a part of the Superfund Technical Assessment & Response Team (START) program. START is executed under Contract No. 68-W5-0031 for the EPA in Region VIII. The generic QAPP and site-specific SAP template were prepared in accordance with the EPA guidance document entitled, "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations, Draft Interim Final EPA QA/R-5" and "Quality Assurance/Quality Control Guidance for Removal Activities" (EPA 1990). The ERP generic QAPP is supplemented by this project-specific SAP template, Standard Operating Procedures (SOPs) and a Site Health and Safety Plan.

1.0 LOCATION AND GEOGRAPHY OF SITE/FACILITY

Site/Facility Name:Rico Town Pond/St. Louis Tunnel Mine and Mill Site

Street Address: Highway 145, 1 mile north of Rico, Colorado

City:Colorado Springs County: Delta State:Colorado Zip Code:

Latitude:	Longitude:	Section:	Township:	Range:
__° __' __.__"	__° __' __.__"	24 and 25	40 North	11 West

Approximate Area of Site: 10 Acres _____ Square Feet

General Topography:

Nearest Residences are located within 1 mi to the S and E.

2.0 OWNER/OPERATOR OF SITE/FACILITY

Owner: Rico Properties, Inc. Operator: Unknown

Street Address: Same as above Street Address:

City: City:

State: Zip Code: State: Zip Code:

Telephone: none Telephone:

Type of Ownership:

☐	Unknown	☐	State	☐	Municipality
✓	Private	☐	County	☐	Federal Agency
☐					

3.0 NAME OF EPA AND/OR STATE AGENCY CONTACT

EPA Contact: Tien Nguyen State Contact:N/A

Street Address: 999 18th Street Street Address:

City: Denver City:

State: CO Zip Code: 80202 State: Zip Code:

Telephone: 303.312.6820 Telephone:

4.0 HISTORY AND DESCRIPTION OF SITE/FACILITY

Years of Operation:_____ ✓ Unknown

Beginning year_____ Ending Year_____ Abandoned Since_____

Status of Site:

☐ Unknown ☐ Active ✓ Inactive ☐ NA (GW plume, etc.)

Predominant Land Uses Within One Mile of Site (Check all that apply):

☐	Unknown	☐	Recreational	✓	State/National Forest
☐	Industrial	✓	Mining	☐	State/National Park
☐	Commercial	☐	Agricultural	☐	_____
✓	Residential	☐	Logging	☐	_____

Site Setting: ☐ Unknown ☐ Urban ☐ Suburban ✓ Rural

Previous Investigations/Assessments/Permit Violations:

☐ Unknown ☐ No ✓ Yes - Type_____

Distance to closest domestic or municipal well(s):Unknown_____

Distance to closest surface water:100 feet_____

Distance to closest water intake(s):unknown100 feet_____

Facility Type / Site Operations (Check all that apply):

☐	Unknown	☐	Chemical Manufacturing
☐	Private Residence/Neighborhood	☐	Petrochemical Manufacturing
☐	Dry Cleaning Facility	☐	Paint and Varnish Manufacturing
☐	Retail Gasoline Station	☐	Electronic Equipment Manufacturing
✓	Mining	☐	Agricultural Chemicals Manufacturing
☐	Metal Forging or Stamping	☐	Plastic and Rubber Products Manufacturing
☐	Metal Coating, Plating or Engraving	☐	Lumber and Wood Products Manufacturing
☐	Refinery	☐	Other Manufacturing
☐	Tannery	☐	Landfill
☐	Battery Reclamation	☐	Incinerator/Smelter
☐	Drum Recycling/Disposal	☐	Treatment, Storage, or Disposal
☐	Federal Facility	☐	Junk/Salvage Yard
☐	_____	☐	_____

The basis for the site information is: ☐ Site maps ☐ Geological information ☐ Disposal records ☐ Photos ✓Historical data ☐ State investigation ☐ Federal investigation ✓ Personal interviews ☐

5.0 LOCATION, CHARACTERISTICS AND EXTENT OF WASTE

Where is the waste located?: (Check all that apply)

☐	Unknown	☐	Vats	☐	Buildings
☐	Contaminated Soil	✓	Drums	☐	Storage Areas
✓	Contaminated Surface Water/Sediment (identified source)	☐	Landfill	☐	Process Areas
		☐	Tailings Pile	☐	Laboratory
☐	Contaminated Groundwater Plume (identified/unidentified source)	✓	Surface Impoundment		
		☐	Trash Pile (open dump)		
☐	Wetlands	☐	Scrap Metal or Junk Pile		
☐	Storm Water Ponds	☐	Chemical Waste Pile		
☐	Wastewater Ponds	☐	Land Treatment Area		
☐	Lagoons	☐	Railroad Tracks		
☐	Drainage Ditches	☐	Roads / Access Ways		
☐	Tanks and Non-Drum Containers	☐	Injection Wells		
☐	Underground Tanks	☐	_____		
☐	_____	☐	_____		

What types of materials were handled at the site? (Check all that apply)

☐	Unknown	☐	Organics	☐	Laboratory/Hospital Waste
✓	Acids	☐	Pesticides/Herbicides	☐	Construction/Demolition Waste
☐	Bases	☐	Oily Waste	☐	Radioactive Waste
✓	Solvents	☐	Petroleum Products	✓	Mine Waste
☐	Inorganics	☐	Paint/Pigments	☐	Municipal Waste
✓	Metals	☐	Explosives	☐	_____

What is the physical state of the waste as deposited? (Check all that apply)

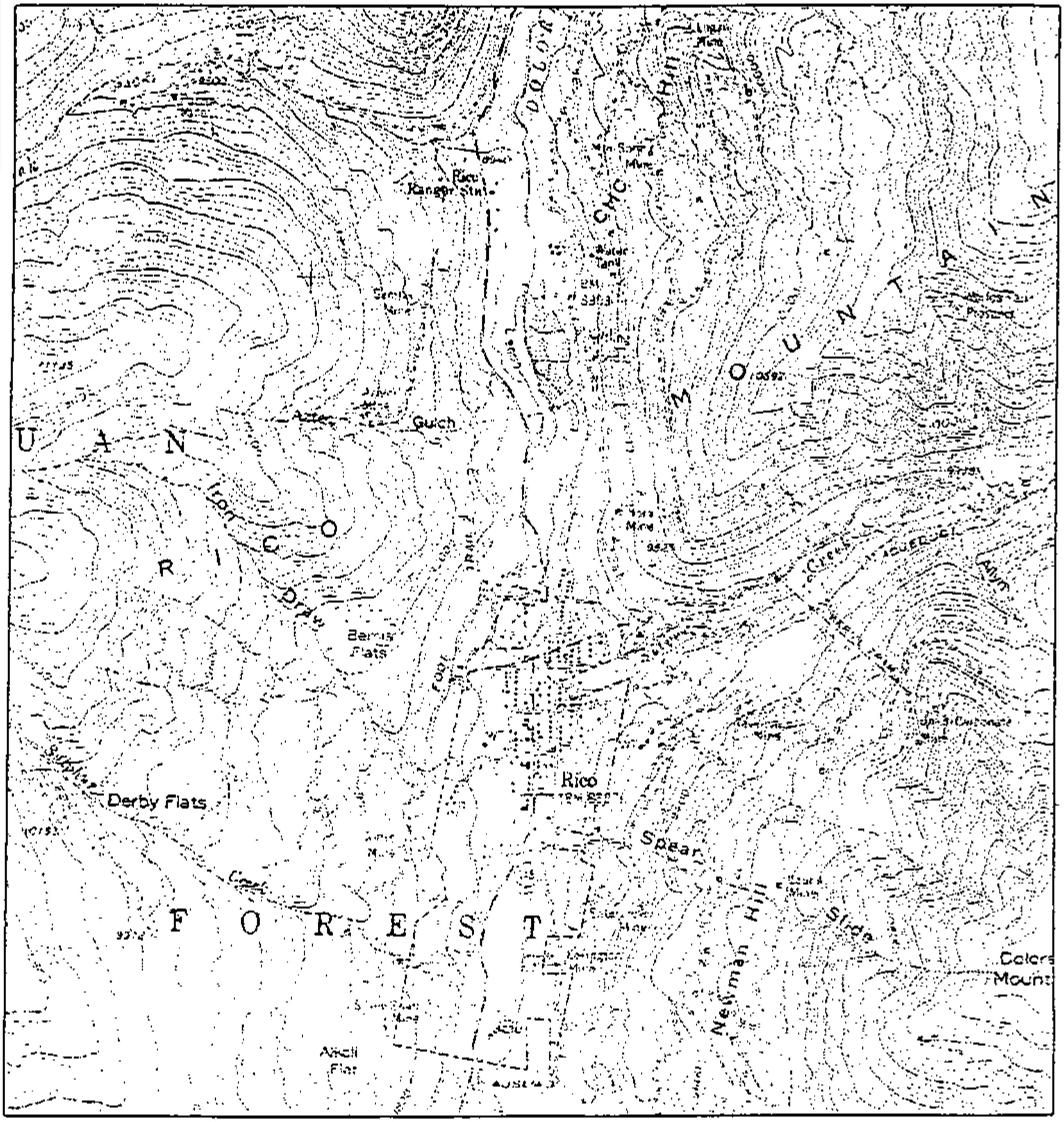
☐ Solid ✓ Sludge ☐ Powder ✓ Liquid ☐ Gas ☐ _____

What are the contaminants of concern?

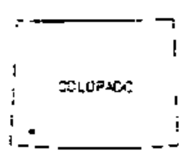
(Contaminants)	(Concentration Range)
Arsenic, Cadmium, Chromium, Lead	

What is the quantity or extent (i.e, area) of the contamination (estimate)?unknown

What is the physical/chemical threat to the population at risk?unknown



SOURCE: USGS QUADRANGLE
RICO, COLORADO
1960 PHOTOINSPECTED 1975



2000 0 2000
SCALE: 1" = 2000'

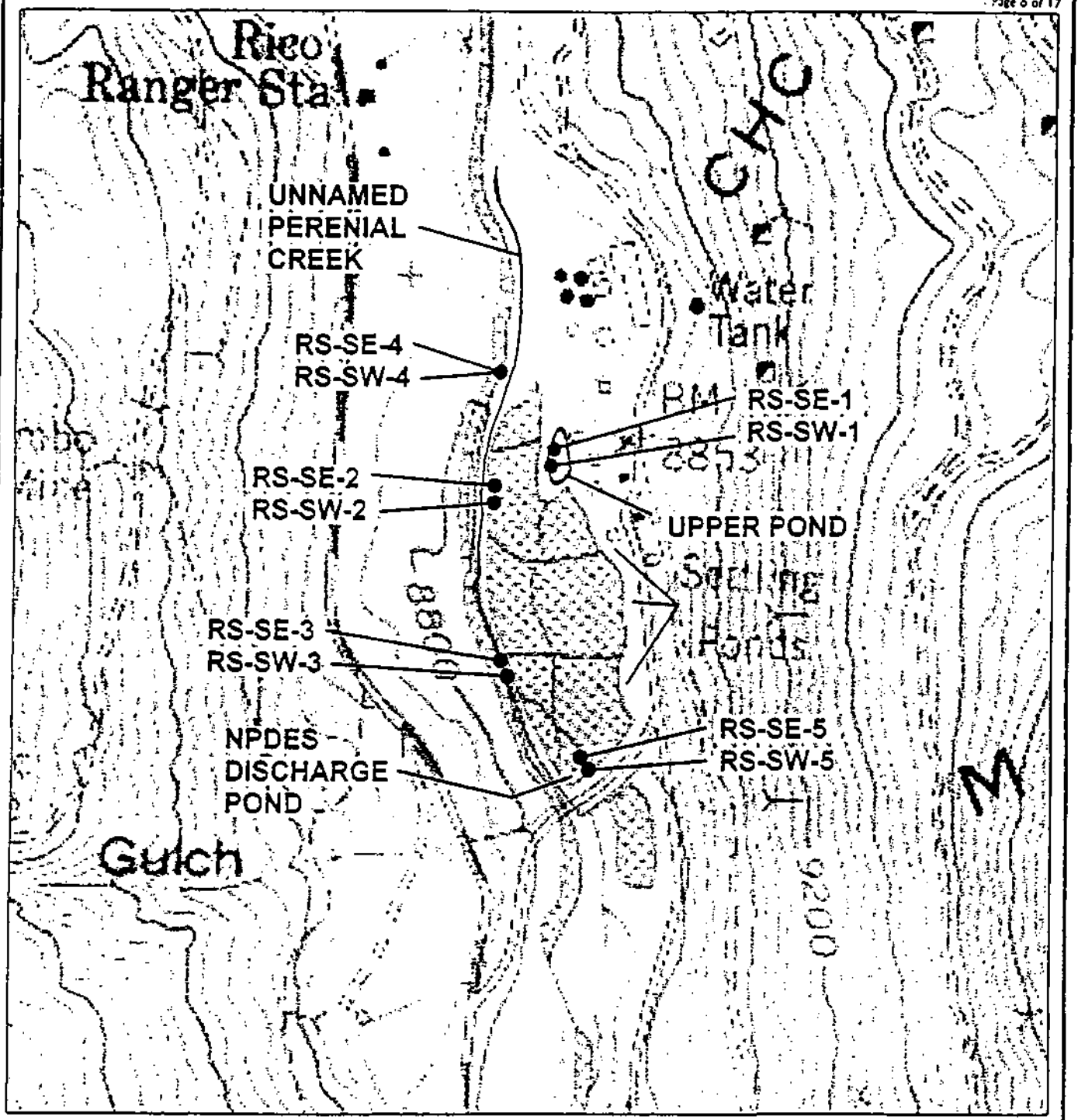
UOS-START
URS Job No. 75-00410.00

RICO TOWN POND
RICO COLORADO
Site Location Map
Figure 1

April 2000

URS OPERATING SERVICES

DATE: 04/19/00 KEN (TIEMI) FILENAME: F:\DRAWINGS\RICO TOWN POND\SITELOCMAP.DWG



SOURCE: USGS QUADRANGLE
RICO, COLORADO
1960 PHOTOINSPECTED 1975

600 0 600
SCALE: 1" = 600'

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RICO TOWN POND
RICO COLORADO

Sample Location Map

Figure 2

April 2000

URS OPERATING SERVICES

75-00410.00

DATE: 04/19/00 KLH (IIDM) FILENAME: F:\DRAWINGS\RICO TOWN POND\SAMPLOCMAP.DWG

6.0 PROJECT OBJECTIVES

6.1 Project Stage

☐ Early Assessment ☐
☐ Cleanup Attainment ☐
✓ Emergency Response

6.2 Project Scope

What is the purpose of this sampling effort? Identify presence of heavy metals in sediment and surface water samples related to settling pond overflow into Dolores creek.

What are the regulatory objectives (e.g. NPDES, Superfund)? NPDES/Superfund

What are the action levels for contaminants of concern? Chemical specific (TBD)

What work is involved? Sample collection

How will the planned activities resolve the problem? Provide definitive evidence of discharge contamination (heavy metals) related to settling pond overflow. If release of heavy metals from settling pond has occurred then an emergency repair of pond banks and discharge could occur.

Who are the intended users of the analytical data? EPA

What will the sample analytical data be used for?Mitigation/cleanup determination

Who are the decision makers? EPA

What are the project limitations (e.g., time, budget)?Time

	6.3 **Sampling Objective.** What are the sample collection objectives and the data types (S, S/D, D) that apply to this project? (Check all that apply, and note data type)	**Data Type***
☐	Assess health and safety for worker protection	
✓	Determine general physical or chemical properties/sources	D
☐	Delineate plume in groundwater	D
☐	Identify hot spots	D
☐	Identify sources	D
✓	Determine extent of contamination	D
✓	Identify migration pathways	D
✓	Identify transport mechanisms	D
✓	Document observed release	
✓	Identify contaminants	D
☐	Determine treatment and disposal options	
✓	Determine threat to humans	D
✓	Determine threat to environment	D
✓	Determine background	
☐	Verify cleanup	
✓	Quantify contamination	D
☐	Compare to benchmark	
✓	Emergency response	D
✓	Determine presence of contamination	D

*** Data Type:** The following notes summarize EPA Superfund data types. For a more complete description refer to Attachment 1.

S = Screening Data: Screening data are generated by rapid, less precise methods of analysis and less rigorous sample preparation. Sample preparation steps may be restricted to simple procedures such as dilution with a solvent, instead of elaborate extraction/digestion and cleanup. Screening data provide analyte identification and quantification, although the quantification may be relatively imprecise. Screening data without associated confirmation data are not considered to be data of known quality. (Refer to ERP Generic QAPP Section 5.1.1.)

S/D = Screening Data with 10% Definitive Confirmation: At least 10% of the screening data are confirmed using analytical methods and QA/QC procedures and criteria associated with definitive data. As a minimum, at least three screening samples reported above the action level (if any) and three screening samples reported below the action level (or as non-detects) should be randomly selected from the appropriate group and confirmed. Analytical error determination is required unless total measurement error is determined during the confirmation analyses. (Refer to ERP Generic QAPP Section 5.1.2.)

D = Definitive Data: Definitive data are generated using rigorous analytical methods, such as approved EPA reference methods. Data are analyte-specific, with confirmation of analyte identity and concentration. Methods produce tangible raw data (e.g., chromatograms, spectra, digital values) in the form of paper printouts or computer-generated electronic files. Data may be generated at the site or at an off-site location, as long as the QA/QC requirements are satisfied. For the data to be definitive, either analytical or total measurement error must be determined. (Refer to ERP Generic QAPP Section 5.1.3.)

7.0 SAMPLING DESIGN

The following sections summarize the sampling design. Match the number for the "Matrix Type" with the "Required Analyses," in Section 7.1, and with the "Sampling Approach" in Section 7.2.

Matrix Type:

Air	Water	Liquid Waste	Soil/Sediment/Solids
1 Ambient air	1 Domestic Wells	1 Petroleum Products	1 Soil
2 Emissions	2 Tap Water	2 Drum Liquid	2 Drum Solid
3 Soil gas	3 Groundwater	3 Tank Liquid	3 Tank Solid
4 _____	**4 Surface Water**	4 Waste Material	4 Waste Material
5 _____	5 _____	5 _____	**5 Sediment**
6 _____	6 _____	6 _____	6 _____

7.1 Analyses Required: Put the number for each matrix type (from the list above) next to the corresponding analysis required for that matrix.

Air	Water	Liquid Waste	Soil/Sediment/Solids
__ 2,4-D & 2,4,5-T	__ BNA(semivolatiles, SVOC)	__ BNA(semivolatiles, SVOC)	__ Ash Content
__ Aromatic Amines	__ BOD	__ BOD	__ BNA(semivolatiles, SVOC)
__ Aromatic Hydrocarbons	__ COD	__ COD	__ BTU
__ Asbestos Fibers	__ Dioxins/Furans	__Corrosivity	__ Dioxin/Furans
__ Bacteria	__ Haz Cat	__ Dioxins/Furans	__ Haz Cat
__ BP Hydrocarbons (36-126°C)	__ Herbicides	__ Haz Cat	__ Herbicides
__ Cyanides	__ Ignitability	__ Herbicides	__Ignitability
__ Metals	__ Metals, dissolved	__Ignitability	5 Metals
__ Fibers	4 Metals, total	__ Metals, dissolved	__ PAHs/PNAs
__ Formaldehyde	__ Oil and Grease	__Metals, total	__ Pesticides, Chlorinated
__ Fungi	__ PAHs/PNAs	__ PAHs/PNAs	__ Pest., Organophosphorus
__ Inorganic Acids	__ Pesticides, Chlorinated	__ Pesticides, Chlorinated	__ PCBs
__ Mercury	__ Pest., Organophosphorus	__ Pest., Organophosphorus	__ TPH
__ Chlorinated Pesticides	__ PCBs	__ PCBs	__ TEPH (diesel range)
__ PAHs/PNAs	__ Solids, total	__ TPH	__ TVPH (gasoline range)
__ PCBs	__ TPH	__ TEPH (diesel range)	__ Phenols
__ PM_{10}	__ TEPH (diesel range)	__ TVPH (gasoline range)	__Reactivity (CN & sulfide)
__ Total Nuisance Dust	__ TVPH (gasoline range)	__ Phenols	__ Solids, total
__ Vinyl Chloride	__ Phenols	__Reactivity (CN & sulfide)	__TCLP - Metals
__ VOC	__ Reactivity (CN & sulfide)	__ TOC	__ TCLP - Semivolatiles
__ _____	__ TOC	__ TOX	__ TCLP - Volatiles
__ _____	__ TOX	__VOC	__ TOC
__ _____	__VOC	__TCLP - Metals	__ TOX
__ _____	__ pH	__TCLP - Semivolatiles	__ VOC
__ _____	__ Immunoassay	__TCLP - Volatiles	__ Immunoassay
__ _____	__ _____	__ Solids, total/dissolved	__ XRF
__ _____	__ _____	__ Immunoassay	__ _____
__ _____	__ _____	__ XRF	__ _____
__ _____	__ _____	__ _____	__ _____

7.2 Sampling Approach: Put the number for each matrix type (from the list above) next to the corresponding sampling approach for that matrix.

Air	Water	Liquid Waste	Soil/Sediment/Solids
__ Judgmental __ Worst Case (Air Only) __ Search (hot spots) __ Composite (explain below)	3 **Judgmental** Search (hot spots) __ Composite (explain below) Samples will be composited as follows:	Judgmental Search (hot spots) Composite (explain below) Samples will be composited as follows:	5 **Judgmental** Search (hot spots) __ Composite (explain below) Samples will be composited as follows:

7.3 What is the justification for this sampling approach?

✓ Directive of OSC
☐
☐
☐
☐

8.0 SAMPLE COLLECTION AND ANALYSIS

The following sections summarize sample collection and analysis: Section 8.1 "Sampling Locations and Sample Quantity," Section 8.2 "Sampling Equipment," Section 8.3 "Sampling Equipment Fabrication," Section 8.4 "Equipment Decontamination," Section 8.5 "Support Vehicle/Facilities/Phones Required," Section 8.6 "Disposal of Investigation-Derived Waste," Section 8.7 Analytical Methods, Sample Containers, Sample Preservation, and Holding," and Section 8.8 Quality Assurance Objectives."

8.1 SAMPLE IDENTIFICATION AND QUANTITY

TABLE 1
Sample Identification and Quantity

Sample ID / Location	Analysis						Quality Control Samples							Total Samples
							Lab QC			Field QC				
	VOA	TCLP VOA	Total Metals	TCLP Metals	RCI	Glycol	Standard Reference Samples	MS/MSD	Other..	Field Replicates	Trip Blanks	Field Blank	Equipment Rinsate	
RS-SW-1			X											3
RS-SE-1			X											2
RS-SW-2			X											3
RS-SE-2			X											2
RS-SW-3			X					X						3
RS-SE-3			X					X						2
RS-SW-4			X											3
RS-SE-4			X											2
RS-SW-5			X											3
RS-SE-5			X											2
RS-SW-6			X							X				3
RS-SE-6			X							X				2

1 Standard Reference samples: QC Samples of known concentration shipped to the laboratory with the field samples.
2 MS/MSD = 1 per matrix per 20 samples. Choose the cleanest sample, but not a blank.
3 Field Replicates (collocated samples) = 1 per matrix per 20 samples. Choose the cleanest sample, but not a blank.
4 Trip Blanks = 1 per shipment (generally only for VOC).
5 Field Blank = 1 per matrix per 20 samples (generally only for VOC).
6 Equipment Rinsate = 1 per matrix per 20 samples (for non-disposable equipment).

8.2 Sampling Equipment

Air	Water	Liquid Waste	Soil/Sediments/Solids
a __ 0.8 um Filter (MCE)	a __ Bacon Bomb	a __ Bacon Bomb	a __ Auger
b __ 0.8-1.2 um, 25 mm Filter	b 3 Bailer	b __ Bailer	b __ Backhoe
c __ 37 mm, 5 um PVC Filter	c __ Bladder Pump	c __ Peristaltic Pump	c __ Bucket Auger
d __ Bubbler	d __ Peristaltic Pump	d __ Dip Sampler	d __ Chisel
e __ Charcoal Tube	e __ Dip Sampler	e __ Drum Thief	e __ Eckman/Ponar Dredge
f __ Filter and Impinger	f __ Drum Thief	f __ Kemmerer Bottle	f __ Electric Hammer
g __ Florisil Tube	g __ Kemmerer Bottle	g __ Sample Bottle	g __ Geoprobe Soil Core
h __ Glass Fiber Filter	h 3 Sample Bottle	h __ COLIWASA	h __ Sampling Treir
i __ Polyurethane Foam Filter	i __ COLIWASA	i __ _____	i 5 Scoop
j __ Silica Gel Tube	j __ Geoprobe	j __ _____	j __ Shelby Tube
k __ Solid Sorbent Tube	k __ Piezometer	k __ _____	k __ Shovel
l __ Summa Canister	l __ _____	l __ _____	l __ Slam Bar Soil Core
m __ Tedlar Bag	m __ _____	m __ _____	m __ Sludge Judge
n __ Tenax Tube	n __ _____	n __ _____	n __ Soil Coring Device
o __ XAD-2 Tubes	o __ _____	o __ _____	o __ Spatula
p __ _____	p __ _____	p __ _____	p __ Split Spoon
			q __ Thin-Wall Tube Sampler
			r __ Trowel
			s

8.3 Sampling Equipment Fabrication.

Air	Water	Liquid Waste	Soil/Sediments/Solids
__ Fiberglass Filter	__ Carbon steel/ Stainless steel	__ Carbon steel/ Stainless steel	__ Carbon steel/Stainless steel
__ Glass	__ Teflon (PTFE)	__ Teflon (PTFE)	__ Teflon (PTFE)
__ Carbon steel/stainless steel	__ Glass	__ Glass	__ Glass
__ _____	__ Plastic/PVC	__ Plastic/PVC	5 Plastic/PVC
__ _____	3 Plastic/polyethylene/HPDE	__ Plastic/polyethylene/HPDE	__ Plastic/polyethylene/HPDE
__ _____			

8.4 Equipment Decontamination Steps (for non-dedicated equipment)

Air	Water	Liquid Waste	Soil/Sediments/Solids
__ Physical removal	b Physical removal	Physical removal	i Physical removal
__ Non-phosphate detergent wash	__ Non-phosphate detergent wash	__ Non-phosphate detergent wash	__ Non-phosphate detergent wash
__ Potable water rinse	__ Potable water rinse	__ Potable water rinse	__ Potable water rinse
__ 10% nitric acid rinse	__ 10% nitric acid rinse	__ 10% nitric acid rinse	__ 10% nitric acid rinse
__ Hexane rinse	__ Hexane rinse	__ Hexane rinse	__ Hexane rinse
__ Methylene chloride rinse	__ Methylene chloride rinse	__ Methylene chloride rinse	__ Methylene chloride rinse
__ Pesticide grade acetone rinse	__ Pesticide grade acetone rinse	__ Pesticide grade acetone rinse	__ Pesticide grade acetone rinse
__ Distilled/deionized water rinse	__ Distilled/deionized water rinse	__ Distilled/deionized water rinse	__ Distilled/deionized water rinse
__ Organic free water rinse	__ Organic free water rinse	__ Organic free water rinse	__ Organic free water rinse
__ Air dry	__ Air dry	__ Air dry	__ Air dry
__ Cover with _____	__ Cover with _____	__ Cover with _____	__ Cover with _____

8.5 Support Vehicles/Facilities/Phones:

What supporting equipment will be required and who is responsible for providing it (e.g., EPA, START)?

✓ Emergency Response Vehicle_____	✓ Cell Phone_____
☐ Trailer _____	☐ Global Positioning System (GPS)_____
☐ Geoprobe_____	☐_____
☐ Drill Rig_____	☐_____
☐ _____	
☐ _____	

8.6 Disposal of Investigation-Derived Wastes (IDW)

☐ No IDW will be generated.
✓ IDW will be containerized and characterized for appropriate disposal.
✓ IDW will be placed on site in an approved location.
☐ _____
☐ _____

8.7 Analytical Methods, Sample Containers, Sample Preservation, and Holding Times

TABLE 2
Analytical Methods, Sample Containers, Sample Preservation, Holding Times

Analysis	Analytical Method Number	Method Reference	Container Number and Type[1]	Required Volume	Preservation[2]	Technical Holding Time[3]
Total Metals	6010B, 7060A, 7421, 7471, 7470, 7740, 7841	SW-846	1 HPDE	4 oz.	4 degrees C, HNO3 pH<2	6 months

1 Recommended container types: AGV = amber glass vial; HDPE = high-density polyethylene bottle and cap; AGB = amber glass bottle.
2 Preserve the samples as soon as you collect them. Add preservatives to filtered samples following filtration. Completely fill containers used for volatile organic samples, permitting no head space.
3 Technical holding time is the time interval from sample collection until sample analysis (or until sample extraction for semivolatile compounds). Technical holding times are determined by method and by matrix.

8.8 Quality Assurance Objectives

TABLE 3
Quality Assurance Objectives

Analysis (for each matrix)	Analytical Method [1]	Data Type [3]	Units	Required Detection Limits [2]	Accuracy [4] % Recovery	Precision [4] ±%
Total Metals (Aqueous)	6010B, 7060A, 7421, 7471, 7470, 7740, 7841	D	µg/L	0.0002-5.0	75-125	± 20

Analysis	Water (% Recovery)	Soil (% Recovery)	Water (RPD)	Soil (RPD)
Metals	75-125	50-120	20	± 35%

1 The specified analytical method contains the complete list of analytes determined from an analysis.
2 Detection limit, accuracy, and precision values are presented in this table as ranges. The values are based on method specifications
and on project data quality objectives. Use a * to indicate site-specific DQOs that differ from method specifications.

3 **Data type** refers to the following:
S = Screening
S/D = Screening with 10% Definitive data
D = Definitive Confirmation

4 **Accuracy** is determined by use of field blind QC samples and laboratory matrix spikes. **Precision** is determined by use of field duplicates, laboratory duplicates, and laboratory matrix spike duplicates.

ATTACHMENT 1
Superfund Data Categories

QA/QC Levels[1]	Screening	Screening with 10% Definitive Confirmation	Definitive
Data Uses[1]	Data useful only for immediate situation; and to afford a quick, preliminary assessment of site contamination.	Data useful for site assessment and decision making at OSC discretion	Data useful for enforcement, litigation, risk assessment, and most other uses
Typical Uses	• Preliminary health and safety assessment • Preliminary identification and quantitation of pollutants • Non-critical decisions • Emergency situations • Waste profiling	• Site characterization • Waste characterization • Clean-up confirmation • Verification of health and safety assessment • Verification of critical samples	• Enforcement • Litigation • Risk assessment
Quality Assurance Type	Data of Unknown Quality	Data of known quality	Data of known quality
Quality Assurance Elements	• Logged quality control checks • Qualified analyst	• Identification • Quantification • Confirmation of 10% of the samples by a definitive method • Error determination[2]	• Definitive identification • Definitive quantification • Error determination
Validation	None	QC Review[3]	Validation of 10% of the results in each of the samples, calibrations, and QC analyses
Quality Control Elements	• Instrument QC • Field QC • Analyst training • Document DLs (Field blanks and collocated samples are not required)	• Instrument QC • Field QC • Analyst training • QC within method parameters • Document DLs	• Instrument QC • Field QC • Analyst training • QC within method parameters • Document DLs
Sampling Plan	Optional	Mandatory	Mandatory

[1]QA/QC levels: Screening is equivalent to QA1; Screening with Definitive Confirmation is similar to QA2 (see footnote 2), and Definitive is similar to QA3. The difference between Definitive and QA3 is found in determination of error, where QA3 requires collection and analysis of eight replicate samples, and Definitive requires analysis of an appropriate number of replicate or collocated samples.

[2]Error determination: Screening with Definitive Confirmation requires measurement of analytical error (screening sample replicates) unless total measurement error (collocated samples) is determined during the confirmation analyses. Error determination is optional for QA2. The site-specific SAP may state that error determination is not necessary if it can be qualitatively shown that the DQOs do not require it, e.g., concentrations in the percent range are expected to be found, yet the action level is in the ppb range.

[3]QC review is required for all samples analyzed under Screening with 10% Definitive Confirmation. Data validation is required for the Definitive Confirmation data.

ATTACHMENT 1
Superfund Data Categories

QA/QC Levels[1]	Screening	Screening with 10% Definitive Confirmation	Definitive
Typical Volatile Analyses	• Field GC (e.g., Sentex field GC with single column and detector)	• Field GC with 10% of samples being confirmed by GC/MS with full QA/QC deliverables; duplicates and blanks.	• EPA Method 8240 or 8260; data package; replicates; blanks and spikes
Typical Volatile Analyses (continued)	• Field GC (continued)	• GC method with 10% of samples being confirmed by GC/MS with full QA/QC deliverables; duplicates and blanks.	• EPA Method 8010/ 8020 with second column confirmation; data package replicate, blanks, and spikes.
Typical Non-volatile Analyses	• Immunoassay kits	• Immunoassay with 10% of samples being confirmed by GC/MS with full QA/QC deliverables; duplicates and blanks.	• EPA Method 8270; data package; replicates, blanks, and spikes.
		• GC method with 10% of samples being confirmed by GC/MS with full QA/QC deliverables; duplicates and blanks.	• EPA Method 8100/ 8120 with second column confirmation; data package; replicate, blanks, and spikes.
Typical Metal Analyses	• Field XRF	• Field XRF with 10% of samples being confirmed by ICP or AA with full QA/QC deliverables; duplicates and blanks.	• EPA Method 6010; data package; replicates, blanks, and spikes.
		• AA, ICP, IC, or wet chemistry methods with 10% of samples being confirmed by ICP or AA with full QA/QC deliverables; duplicates and blanks.	• EPA methods for AA (7000s); data package; replicate, blanks, and spikes.

ATTACHMENT 1
Superfund Data Categories
(continued)

QA/QC Levels[1]	Screening	Screening with 10% Definitive Confirmation	Definitive
Typical PCB/ Pesticide Analyses	• Immunoassay Kits	• Immunoassay kits[4] with 10% of samples being confirmed by GC/MS with full QA/QC deliverables; duplicates and blanks.	• EPA Method 8140-Pesticides; data package; replicates, blanks, and spikes.
		• GC method with 10% of samples being confirmed by GC on a second column with full QA/QC deliverables; duplicates and blanks.	• EPA Method 8080 with second column confirmation; data package; replicate, blanks, and spikes.
Typical Petroleum Hydrocarbon Analyses	• Immunoassay kits • Chem test kits (HANBY) • IR (EPA 413 and 418) methods	• Immunoassay[4], IR, and chemical analysis with 10% of samples being confirmed by GC/MS or EPA Method 8015 (modified) with second column confirmation with full QA/QC deliverables; duplicates and blanks.	• EPA Method 8015 (modified) with second column confirmation; data package; replicate, blanks, and spikes.
		• GC method with 10% of samples being confirmed by GC/MS or GC on two columns with full QA/QC deliverables; duplicates and blanks.	
Testing for physical parameters is not analyte specific. Therefore, by strict definition, any physical test would have to be considered non-definitive. However, the testing methods may be definitive if approved methodology is followed.			
Physical Parameters (pH, flash point, etc.)	• Field testing equipment	• Testing equipment with QC samples, duplicates, and blanks.	• Testing equipment; data package; and QC samples, duplicates, and blanks.

[4]Immunoassay kits used to generate data must be capable of generating calibration, blank, duplicate, and estimation of error data.